

IN THE CLAIMS

Cancel allowable claim 2 without prejudice and amend rejected claim 1 to incorporate the subject matter of allowable claim 2:

1. (Amended) A magnetic levitation rotating machine comprising:

a rotator;

an electromagnet or a permanent magnet supporting the rotator in a levitated state by a magnetic force of the electromagnet or the permanent magnet;

the rotator comprising a position detection planar surface further comprising a concave and/or a convex provided in the planar surface;

a displacement sensor on a fixed part of the machine, to detect a displacement of the planar surface including the concave or the convex; and

a detection mechanism detecting the displacement of the rotator and a rotating speed of the rotator from an output of the displacement sensor;

wherein the displacement of the rotator is detected by extracting, from the output of the displacement sensor, the displacement of the planar surface with the component representing the concave or the convex being removed therefrom.

2. [canceled; incorporated into claim 1]

3. (Amended) The magnetic levitation rotating machine according to claim 4, wherein the rotating speed of the rotator is detected by extracting, from the output of the displacement sensor, a pulse output corresponding to the concave or the convex.

4. (Amended) A magnetic levitation rotating machine comprising:

a rotator;

an electromagnet or a permanent magnet supporting the rotator in a levitated state by a magnetic force of the electromagnet or the permanent magnet;

the rotator comprising a position detection planar surface further comprising a concave and/or a convex provided in the planar surface;

a displacement sensor on a fixed part of the machine, to detect a displacement of the planar surface including the concave or the convex; and

a detection mechanism detecting the displacement of the rotator and a rotating speed of the rotator from an output of the displacement sensor;

wherein at least one pair of the displacement sensors is disposed at an arbitrary angle to the center of rotation of the rotator;

the detection planar surface is disposed so as to face the displacement sensors;

the concave and/or the convex is disposed so as to correspond to the positions of the displacement sensors at the arbitrary angle to the center of rotation of the rotator;

and

the position displacement and rotating speed of the detection planar surface are computed from the outputs of the at least one pair of the displacement sensors and are output to detect the displacement of the rotator and the rotating speed of the rotator.

5. (Amended) A magnetic levitation rotating machine comprising:

a rotator;

an electromagnet or a permanent magnet supporting the rotator in a levitated state by a magnetic force of the electromagnet or the permanent magnet;

the rotator comprising a position detection planar surface further comprising a concave and/or a convex provided in the planar surface;

a displacement sensor on a fixed part of the machine, to detect a displacement of the planar surface including the concave or the convex; and

a detection mechanism detecting the displacement of the rotator and a rotating speed of the rotator from an output of the displacement sensor;

wherein the detection planar surface of the rotator is comprised of a thrust disk formed of a magnetic material, which is an object to be controlled by an electromagnet for axial levitation position control.

6. The magnetic levitation rotating machine according to claim 5, wherein the displacement sensors are each disposed within the axial electromagnet.

7. (Amended) The magnetic levitation rotating machine according to claim 5, wherein the displacement sensors are each disposed outside of the axial electromagnet.

Add new claims:

8. (New) A magnetic levitation rotating machine comprising:
- a rotator;
 - an electromagnet or a permanent magnet supporting the rotator in a levitated state by a magnetic force of the electromagnet or the permanent magnet;
 - the rotator comprising one or more than one position detection planar surfaces;
 - a pair of displacements on the planar surfaces, the displacements comprising one concave and one convex;
 - a pair of displacement sensors on a fixed part of the machine, the pair of displacement sensors corresponding to the pair of displacements and detecting the pair of displacements substantially simultaneously; and
 - a detection mechanism combining signals from the pair of displacement sensors.
9. (New) The magnetic levitation rotating machine according to claim 8, wherein the detection mechanism adds the signals to determine a position of the rotator and the detection mechanism subtracts the signals to determine a rotating speed of the rotator.
10. (New) The magnetic levitation rotating machine according to claim 8, wherein convex and the concave are diametrically opposed across a rotation axis of the rotator.

IN THE DRAWING

Please approve the attached proposed drawing change that labels Figs. 10 and 11 as "Prior Art."